

Application Number 10/647,839
Amendment dated September 12, 2007
Response to Office Action mailed August 30, 2007

SEP 12 2007

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended) A method comprising:

establishing a routing communication session in accordance with a routing protocol between a primary routing control unit of a first router and a second router, wherein the routing communication session is established to have a first restart time in the event of a session failure; and

reestablishing the routing communication session with a secondary routing control unit of the first router upon failure of the primary routing control unit, wherein the routing communication session is initially reestablished to have a second restart time that is substantially the same as the first restart time; and

dynamically renegotiating the second restart time to a third restart time that is less than the first restart time upon identifying the second router as supporting dynamic renegotiation.

Claim 2 (Currently Amended) The method of claim 1, further comprising automatically renegotiating the communication session with the secondary control unit to change the restart time for the communication from the third second restart time back to the first restart time upon recovery of the primary routing control unit.

Claim 3 (Original) The method of claim 1, further comprising:

preserving forwarding information in a state of the first router prior to failure of the primary routing control unit; and

forwarding traffic in accordance with the preserved forwarding information while reestablishing the routing communication session.

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Claim 4 (Currently Amended) The method of claim 1, ~~further comprising:~~
~~determining whether the second router supports dynamic renegotiation; and~~
~~selectively reducing the second restart time from the first restart time based on the~~
~~determination~~

wherein each of the first restart time, the second restart time, and the third restart time
specify durations of time that the second router is to wait for the first router to reestablish the
routing communication session after failure of the routing communication session prior to the
second router finding alternative routes that do not utilize the first router.

Claim 5 (Currently Amended) The method of claim 1[[4]], ~~wherein further comprising~~
~~determining whether the second router supports dynamic renegotiation~~ comprises monitoring the
routing communication session between the primary routing control unit and the second router to
determine whether the second router supports dynamic renegotiation.

Claim 6 (Currently Amended) The method of claim 1[[4]], further comprising: ~~wherein~~
~~determining whether the second router supports dynamic renegotiation comprises:~~
receiving information from the second router that identifies one or more routing protocol
capabilities supported by the second router; and
identifying the second router as supporting dynamic renegotiation based on the capability
information.

Claim 7 (Cancelled).

Claim 8 (Currently Amended) The method of claim 1, wherein reestablishing the routing
communication comprises reestablishing the routing communication ~~between~~ in accordance with
the routing protocol.

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Claim 9 (Previously Presented) The method of claim 1, wherein the routing protocol comprises one of the Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Intermediate System -- Intermediate System (ISIS), Routing Information Protocol (RIP), Label Distribution Protocol (LDP), and Resource Reservation Protocol (RSVP).

Claim 10 (Currently Amended) A network device comprising:
a primary routing control unit that establishes a routing communication session with a neighboring network device in accordance with a routing protocol, wherein the primary routing control unit establishes the routing communication session to have a first restart time; and
a secondary routing control unit that reestablishes the routing communication session upon failure of the primary routing control unit, wherein the secondary routing control unit initially reestablishes the routing communication session to have a second restart time that is substantially the same as the first restart time and renegotiates the second restart time to a third restart time that is reduced from the first restart time upon identifying the neighboring router as supporting dynamic renegotiation.

~~wherein the secondary routing control unit reestablishes the routing communication session to have a second restart time reduced from the first restart time~~

Claim 11 (Currently Amended) The network device of claim 10, wherein the secondary routing control unit renegotiates the third ~~second~~ restart time to an increased value upon recovery of the primary routing control unit.

Claim 12 (Original) The network device of claim 10, wherein the secondary routing control unit preserves forwarding information in a state of the network device prior to failure of the primary routing control unit.

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Claim 13 (Currently Amended) The network device of claim 12,
wherein the secondary routing control unit receives a routing communication having
updated routing information from the neighboring network device, and
wherein the secondary routing control unit extracts the updated routing information from
the routing communication[[,]] and updates the preserved forwarding information based on the
routing communication[[s]] from the neighboring network device.

Claim 14 (Original) The network device of claim 12, further comprising a forwarding
component that forwards traffic in accordance with the preserved forwarding information.

Claim 15 (Original) The network device of claim 14, further comprising one or more interface
cards to receive and send data flows to and from a network, and wherein the forwarding
component resides within at least one of the interface cards.

Claim 16 (Original) The network device of claim 14, further comprising a forwarding engine,
and wherein the forwarding component resides within the forwarding engine.

Claim 17 (Canceled).

Claim 18 (Currently Amended) The network device of claim 10[[17]], wherein the
secondary routing control unit monitors the routing communication session maintained by the
primary routing control unit to identify the neighboring router as supporting dynamic
renegotiation.

Claim 19 (Currently Amended) The network device of claim 10[[17]], wherein the
secondary routing control unit receives information from the neighboring router identifying one
or more routing protocol capabilities supported by the neighboring router and identifies the
neighboring router as supporting dynamic renegotiation based on the received information.

Claim 20 (Cancelled).

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Claim 21 (Original) The network device of claim 10, wherein the routing protocol comprises one of Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Intermediate System – Intermediate System (ISIS), Routing Information Protocol (RIP), Label Distribution Protocol (LDP), and Resource Reservation Protocol (RSVP).

Claim 22 (Currently Amended) A computer-readable medium comprising instructions that when executed by a processor to cause a the processor to:

establish a routing communication session in accordance with a routing protocol between a primary routing control unit of a first router and a second router, wherein the routing communication session is established to have a first restart time in the event of a session failure; and

reestablish the routing communication session with a secondary routing control unit of the first router upon failure of the primary routing control unit, wherein the routing control session is initially reestablished having a second restart time that is substantially the same as the first restart time; and

renegotiate the second restart time to a third second restart time upon identifying the neighboring router as supporting dynamic renegotiation, wherein the routing communication session is established to have a second third restart time is less than first restart time.

Claim 23 (Currently Amended) The computer-readable medium of claim 22, further comprising instructions that cause the processor to automatically renegotiate the third second restart time to an increased value upon recovery of the primary routing control unit.

Claim 24 (Original) The computer-readable medium of claim 22, further comprising instructions that cause the processor to:

preserve forwarding information in a state of the first router prior to failure of the primary routing control unit; and

forward traffic in accordance with the preserved forwarding information.

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Claim 25 (Original) The computer-readable medium of claim 22, further comprising instructions that cause the processor to identify the neighboring router as supporting dynamic renegotiation.

Claim 26 (Original) The computer-readable medium of claim 25, further comprising instructions to cause the processor to monitor the routing communication session between the primary routing control unit and the neighboring router to identify whether the neighboring router supports dynamic renegotiation.

Claim 27 (Original) The computer-readable medium of claim 25, further comprising instructions to cause the processor to:

- receive information from the neighboring router that identifies one or more routing protocol capabilities supported by the neighboring router; and
- identify the neighboring router as supporting dynamic renegotiation based on the capability information.

Claims 28-31 (Cancelled).

Claim 32 (Currently Amended) A method comprising:

- establishing a session in accordance with a protocol between a primary control unit of a first device and a second device, wherein the session is established to have a first restart time in the event of a session failure; and

- reestablishing the session with a secondary control unit of the first device upon failure of the primary control unit, wherein the session is initially reestablished to have a second restart time that is substantially the same as the first restart time; and

- dynamically renegotiating the second restart time to a third restart time upon identifying the second device as supporting dynamic renegotiation, wherein the third restart time is less than first restart time.

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Claim 33 (Currently Amended) The method of claim 32, further comprising automatically renegotiating the ~~second~~ third restart time to the first restart time upon recovery of the primary control unit.

Claim 34 (Original) The method of claim 32, further comprising:
preserving information in a state of the first device prior to failure of the primary control unit; and
forwarding traffic in accordance with the preserved information while reestablishing the session.

Claim 35 (Currently Amended) The method of claim 32, further comprising:
determining whether the second device supports dynamic renegotiation; and
selectively reducing the second restart time from the first restart time to the third restart time based on the determination.

Claim 36 (Original) The method of claim 35, wherein determining whether the second device supports dynamic renegotiation comprises monitoring the session between the primary control unit and the second device to determine whether the second device supports dynamic renegotiation.

Claim 37 (Original) The method of claim 35, wherein determining whether the second device supports dynamic renegotiation comprises:
receiving information from the second device that identifies one or more protocol capabilities supported by the second device; and
identifying the second device as supporting dynamic renegotiation based on the capability information.

Claim 38 (Cancelled).

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Claim 39 (Original) The method of claim 32, wherein reestablishing the session comprises reestablishing the session in accordance with a routing protocol.

Claim 40 (Previously Presented) The method of claim 39, wherein the routing protocol comprises one of the Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Intermediate System – Intermediate System (ISIS), Routing Information Protocol (RIP), Label Distribution Protocol (LDP), and Resource Reservation Protocol (RSVP).

Claim 41 (Previously Presented) The method of claim 32, wherein establishing a session comprises establishing a routing session between a primary routing control unit of a first router and a second router.

Claim 42 (Currently Amended) Elements comprising:

a primary control unit that establishes a session with a neighboring network device in accordance with a protocol, wherein the primary control unit establishes the session to have a first restart time; and

a secondary control unit that reestablishes the session upon failure of the primary control unit, ~~wherein the secondary control unit reestablishes the session to have a second restart time reduced from the first restart time~~ wherein, upon failure of the primary control unit, the secondary control unit initially reestablishes the session to have a second restart time that is substantially the same as the first restart time and renegotiates the second restart time to a third restart time that is reduced from the first restart time if the neighboring network device supports dynamic renegotiation.

Claim 43 (Currently Amended) The elements of claim 42, wherein the secondary control unit renegotiates the third ~~second~~ restart time to an increased value upon recovery of the primary control unit.

Claim 44 (Original) The elements of claim 42, wherein the secondary control unit preserves information prior to failure of the primary routing control unit.

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Claim 45 (Currently Amended) The elements of claim 44,
wherein the secondary control unit receives a communication having updated information
from the neighboring network device, and
wherein the secondary control unit extracts the updated information from the
communication[[,]] and updates the preserved information based on the routing communication
from the neighboring network device.

Claim 46 (Original) The elements of claim 44, further comprising a forwarding component that
forwards traffic in accordance with the preserved information.

Claim 47 (Original) The elements of claim 46, further comprising one or more interface cards
to receive and send data flows to and from a network, and wherein the forwarding component
resides within at least one of the interface cards.

Claim 48 (Original) The elements of claim 46, further comprising a forwarding engine, and
wherein the forwarding component resides within the forwarding engine.

Claim 49 (Original) The elements of claim 42, wherein the secondary routing control unit
identifies the neighboring network device as supporting dynamic renegotiation.

Claim 50 (Original) The elements of claim 49, wherein the secondary control unit monitors the
session to identify the neighboring network device as supporting dynamic renegotiation.

Claim 51 (Original) The elements of claim 49, wherein the secondary control unit receives
information from the neighboring network device identifying one or more capabilities supported
by the neighboring network device and identifies the neighboring network device as supporting
dynamic renegotiation based on the received information.

Claim 52 (Cancelled).

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Claim 53 (Original) The elements of claim 42, wherein the protocol comprises one of Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Intermediate System – Intermediate System (ISIS), Routing Information Protocol (RIP), Label Distribution Protocol (LDP), and Resource Reservation Protocol (RSVP).

Claim 54 (Original) The elements of claim 42, wherein the elements comprises elements of a network device.